

IN THE CLAIMS:

This listing of claims replaces all prior versions of the claims in the application. Claims 1, 3, 5-19, and 22-28 are pending in this application with claims 1, 13, and 18 being the non-withdrawn independent claims, with claims 5, 7-12, 15-17 and 22-25 being withdrawn. Currently amended claims are shown with additions underlined and deletions in ~~striketrough~~ text. No new matter is added by these amendments.

1. (Currently Amended) An apparatus, comprising
a catheter having a lumen;
a conductive element disposed along the catheter; and
a balloon having an interior in fluid communication with the lumen of the catheter,
the balloon having a first layer formed at least in part of a conductive material conductively
coupled to the conductive element, the balloon having a collapsed configuration and an
expanded configuration, at least a portion of the balloon including a second layer and a third
layer, the second layer being formed at ~~least in part~~ of an insulation material, the third layer
being formed at least in part of a conductive material.
2. (Canceled)
3. (Previously Presented) The apparatus of claim 1, wherein:
the conductive material of the first layer of the balloon includes a plurality of
conductive portions, two adjacent conductive portions from the plurality of conductive
portions being separated by an insulation portion from a plurality of insulation portions.
4. (Canceled)
5. (Withdrawn and Previously Presented) The apparatus of claim 1, wherein:
the first layer of the balloon includes a plurality of conductive portions, two adjacent
conductive portions from the plurality of conductive portions of the first layer of the balloon
being separated by an insulation portion from a plurality of insulation portions,

the third layer of the balloon includes a plurality of conductive portions, two adjacent conductive portions from the plurality of conductive portions of the third layer of the balloon being separated by an insulation portion from a plurality of insulation portions,

each conductive portion from the plurality of conductive portions of the first layer of the balloon being offset from a corresponding conductive portion from the plurality of conductive portions of the third layer of the balloon.

6. (Previously Presented) The apparatus of claim 1, further comprising:
the first layer and the third layer of the balloon each being a bipolar electrode.

7. (Withdrawn) The apparatus of claim 1, the lumen of the catheter being a first lumen, wherein:

the catheter has a first end portion, a second end portion and a second lumen, the first end portion of the catheter being disposed within the balloon, the first end portion of the catheter having an inlet associated with the first lumen and an outlet associated with the second lumen,

a fluid regulator coupled to the second end portion of the catheter, the fluid regulator configured to circulate a fluid at a temperature within the balloon less than a temperature of the conductive material of the balloon.

8. (Withdrawn and Previously Presented) The apparatus of claim 1, wherein the balloon is a first balloon, the lumen of the catheter being a first lumen, the apparatus further comprising:

a second balloon disposed outside of the first balloon, the second balloon being fluid permeable, the catheter including a second lumen in fluid communication with the second balloon.

9. (Withdrawn and Previously Presented) The apparatus of claim 1, wherein the balloon is a first balloon, the lumen of the catheter being a first lumen, the apparatus further comprising:

a second balloon disposed outside of the first balloon, the second balloon being fluid permeable, the catheter including a second lumen in fluid communication with the second balloon; and

a fluid regulator coupled to the second lumen of the catheter, the fluid regulator configured to control a rate of fluid perfusing from the second balloon based on an impedance associated with the second balloon.

10. (Withdrawn) The apparatus of claim 1, further comprising:
an atraumatic tip disposed at a distal end of the balloon.
11. (Withdrawn) The apparatus of claim 1, further comprising:
a guide wire disposed within the lumen of the catheter and an interior of the balloon.
12. (Withdrawn and Previously Presented) The apparatus of claim 1, further comprising:
the catheter has a first non-conductive layer, a second non-conductive layer and a conductive layer, the conductive layer being disposed between the first non-conductive layer and the second non-conductive layer, the conductive layer being electrically coupled to the conductive material of the first layer of the balloon.
13. (Previously Presented) A method for operating a catheter having a balloon in communication with the catheter, comprising:
percutaneously disposing the balloon while in a collapsed configuration into a tissue cavity previously-formed by removal of a tissue mass, the balloon being formed of a conductive material;
expanding the balloon into an expanded configuration, the balloon in the expanded configuration having a shape associated with a shape of the previously-formed tissue cavity;
and
applying a radio-frequency signal to the conductive portion of the balloon.

14. (Original) The method of claim 13, further comprising:
circulating a fluid within the balloon, the fluid within the balloon having a temperature less than a temperature of the conductive material of the balloon.
15. (Withdrawn) The method of claim 13, the balloon being a first balloon, the catheter including a second balloon disposed outside the first balloon and being fluid permeable, further comprising:
providing a fluid within a second balloon.
16. (Withdrawn) The method of claim 13, the balloon being a first balloon, the catheter including a second balloon disposed outside the first balloon and being fluid permeable, further comprising:
providing a fluid within a second balloon based on an impedance associated with the tissue cavity.
17. (Withdrawn) The method of claim 13, the applying including modifying the shape of the previously-formed tissue cavity into a substantially spherical shape, the method further comprising:
removing the balloon from the modified tissue cavity;
inserting a radiation therapy device into the modified tissue cavity; and
performing radiation therapy based on the radiation therapy device.
18. (Previously Presented) A apparatus for treating a margin tissue associated with a tissue cavity after removal of a tissue mass, comprising:
a tubular member defining a lumen; and
a balloon having at least one electrode and defining an interior in fluid communication with the lumen of the tubular member, the balloon having a range of configurations including an expanded configuration corresponding to the tissue cavity and a collapsed configuration,
the at least one electrode being disposed within a first layer of balloon, the balloon further including a second layer and a third layer, the second layer of the balloon being

formed of an insulation material, the third layer of the balloon being formed of its own at least one electrode.

19. (Previously Presented) The apparatus of claim 18, wherein:
the at least one electrode of the balloon is formed with the first layer of the balloon.

20-21. (Canceled)

22. (Withdrawn and Previously Presented) The apparatus of claim 18, further comprising:

a radio-frequency generator coupled to the at least one electrode of the first layer of the balloon and the at least one electrode of the third layer of the balloon, the first layer of the balloon and the third layer of the balloon defining a bipolar configuration.

23. (Withdrawn) A method for making an expandable ablation balloon formed of a conductive material and having a first portion and a second portion, comprising:

masking the first portion of a balloon based on a mask;
depositing an insulation layer on the second portion of the balloon;
depositing a conductive layer on the second portion of the balloon; and
removing the mask from the first portion of the balloon.

24. (Withdrawn) The method of claim 23, the insulation layer being a first insulation layer, the method further comprising:

depositing a second insulation layer on the second portion of balloon before the removing the mask from the first portion of the balloon.

25. (Withdrawn) The method of claim 23, the insulation layer being a first insulation layer, the method further comprising:

depositing a second insulation layer on the first portion of the balloon and the second portion of the balloon after the removing the mask from the first portion of the balloon.

26. (Previously Presented) The method of claim 13, wherein the applying includes applying the radio-frequency signal to the conductive portion of the balloon such that heat from the conductive portion of the balloon is produced to ablate at least a portion of a margin tissue associated with the tissue cavity.

27. (Previously Presented) The apparatus of claim 1, wherein the balloon is configured to be disposed within a tissue cavity previously-formed by removal of a tissue mass and configured to expand to a size associated with the tissue cavity to ablate margin tissue associated with the tissue cavity.

28. (Previously Presented) The apparatus of claim 18, wherein the at least one electrode of the balloon includes a first conductive portion and a second conductive portion separated by an insulation portion from a plurality of insulation portions.